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10/017,674	12/14/2001	Ralph T. Brunner	18602-06593 (P2305C)	9756

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FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

EXAMINER

CHUNG, DANIEL J

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/017,674

Applicant(s)

BRUNNER ET AL.

Examiner

Daniel J Chung

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-72 are presented for examination. This office action is in response to the amendment filed on 7-30-2004.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al (5,638,499) in view of Bier (6,072,501)

Regarding claim 1, O'Connor et al discloses that the a computer-implemented method (Fig 21) for combining at least two overlapping layers to render an image, the image containing a plurality of image pixels, each overlapping layer containing a plurality of layer pixels, each layer pixel corresponding to one of the image pixels, (See Abstract, col 14 line 20-52) the method comprising: [a') defining a tile, the tile comprising a subset of the image pixels delimited according to an area of overlap among a set of at least two layers, so that a first portion of the image lies within the tile and a second portion of the image lies outside the tile;] and a) processing the first portion of the image distinctly from the second portion of the image by, for at least one image pixel in

the defined tile (See Abstract, Fig 14, Fig 16, Fig 21, Fig 22, Fig 23, col 7 line 46-53, col 14 line 20-52, col 14 line 53-col 15 line 23): a.1) initializing an accumulator color value (MOVE, 2; "RT values of pixel in layer to blend accumulator"); a.2) selecting one of the layers in the set of at least two layers, the selected layer having a layer pixel corresponding to the image pixel, the layer pixel having a color value (SET, 1; "initialize a layer index to the topmost layer") a.3) compositing the color value of the layer pixel with the accumulator color value (COMBINE, 6; "layer i with layer i-1 in BAcc); a.4) storing the result of a.3) in the accumulator (COMBINE, 6; "blend accumulator"); a.5) determining whether layer pixels for any remaining layers in the set of at least two layers should be processed (TEST, 4; 'testing last layer whether it is completed or not'); a.6) responsive to a.5) indicating that layer pixels for any remaining layers should be processed, repeating a.2) to a.6) (TEST, 4; 'testing last layer whether it is completed or not'); and a.7) outputting the accumulator color value (CALCULATE, 7; 'calculating final pixel color'); wherein, for each defined tile, the set of layers that overlap within the tile is homogenous throughout the entirety of the tile.

O'Connor et al does not specifically disclose that "defining a tile, which a subset of the image pixels delimited according to an area of overlap, wherein the set of layers that overlap within the tile is homogenous throughout the entirety of the tile". However, such limitation is shown in the teaching of Bier. [i.e. composed scene '500' in Fig 5, '1704-1707' in Fig 17] (See Fig 5, Fig 17, col 7 line 54-62) It would have been obvious to one skilled in the art to incorporate the teaching of Bier into the teaching of O'Connor

et al [i.e. the overlapped portions are separately calculated/executed with other regions of windows/layers], in order to produce faster final composed image with easy manner [i.e. “reduce the amount of computation and speed processing in the processing of transparency” See col 7 line 62-65 in Schiller et al], as using such “tile” structure is also advantageously desirable in the teaching of O’Connor et al for performing image composition with multiple layers with minimized hardware (i.e. less memory, as tiles can be treated as one group of embodiment in memory) at faster processing time (i.e. eliminate repetitious calculations for invisible tiles or on overlapped regions by partitioning the object).

Regarding claim 2, O’Connor et al discloses that wherein each layer pixel has an opacity value, and wherein (See Abstract, Fig 14, Fig 16, Fig 21, Fig 22, Fig 23, col 7 line 46-53, col 14 line 20-52, col 14 line 53-col 15 line 23): a.1) further comprises initializing an accumulator opacity value (MOVE, 2); a.3) further comprises compositing the opacity value of the layer pixel with the accumulator opacity value (COMBINE, 6); and a.5) comprises determining whether the accumulator opacity value indicates full opacity (TEST, 5).

Regarding claim 3, O’Connor et al discloses that wherein a.2) comprises selecting a topmost remaining layer in the set of at least two layers. (See col 7 line 46-53, col 9 line 27-39, col 18 line 6-18)

Regarding claim 4, O'Connor et al discloses that wherein a.7) comprises outputting the accumulator value to a frame buffer. (See Fig 16, col 14 line 20-52)

Regarding claim 5, O'Connor et al discloses that further comprising: b) displaying the image. (See Fig 16, col 14 line 20-52)

Regarding claim 6, O'Connor et al discloses that further comprising: b) repeating a) for each image pixel in the defined tile. (See Abstract, col 14 line 20-50, col 14 line 53-col 15 line 23)

Regarding claim 7, O'Connor et al discloses that wherein a) comprises performing a.1) through a.7) for at least two image pixels concurrently. (See Abstract, col 11 line 49-52, col 14 line 20-50, col 14 line 53-col 15 line 23)

Regarding claim 8, O'Connor et al discloses that further comprising: b) concurrently with a), for a second image pixel in the defined tile (See Abstract, Fig 14, Fig 16, Fig 21, Fig 22, Fig 23, col 7 line 46-53, col 11 line 34-52, col 14 line 20-52, col 14 line 53-col 15 line 23): b.1) initializing a second accumulator color value (MOVE, 2); b.2) selecting one of the layers in the set of at least two layers, the selected layer having a second layer pixel corresponding to the second image pixel, the second layer pixel having a color value (SET, 1); b.3) compositing the color value of the second layer pixel

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with the second accumulator color value (COMBINE, 6); b.4) storing the result of b.3) in the second accumulator (COMBINE, 6); b.5) determining whether layer pixels for any remaining layers in the set of at least two layers should be processed (TEST, 4); b.6) responsive to b.5) indicating that layer pixels for any remaining layers should be processed, repeating b.2) to b.6) (TEST, 4); and b.7) outputting the second accumulator color value (CALCULATE, 7).

Regarding claim 9, O'Connor et al discloses that wherein at least one of the layers in the set of at least two layers is non-rectangular. (See Fig 4, Fig 22)

Regarding claim 10, O'Connor et al discloses that wherein at least one pixel of at least one of the layers in the set of at least two layers is transparent, and wherein a.3) comprises: a.3.1) responsive to the layer pixel being transparent, retaining the accumulator color value; and a.3.2) responsive to the layer pixel not being transparent, compositing the color value of the layer pixel with the accumulator color value. (See steps 5,6,7 of Fig 21)

Regarding claim 11, O'Connor et al discloses that further comprising: b') repeating a') and a) for at least one second defined tile. (See Abstract, Fig 21)

Regarding claim 12, O'Connor et al discloses that wherein each layer comprises a window, and wherein the image comprises a display for a windowing system. (See Fig 14, Fig 15, Fig 22, Fig 23)

Regarding claim 13, refer to the discussion for the claim 1 hereinabove, O'Connor et al further discloses that wherein a first one of the layers in the set overlaps a second one of the layers in the set, and wherein each layer comprises bounds defined by edges, and wherein at least one edge of the first layer lies within the bounds of the second layer, and wherein a') comprises: subdividing the second layer along a line corresponding to an extension of the at least one edge of the first layer that lies within the bounds of the second layer. (See Abstract, Fig 14, Fig 16, Fig 21, Fig 22, Fig 23, col 7 line 46-53, col 11 line 34-52, col 14 line 20-52, col 14 line 53-col 15 line 23)

Regarding claim 14, O'Connor et al discloses that wherein: a.2) comprises selecting one of the layers in the set of at least two layers, the selected layer having a layer pixel corresponding to the image pixel, the layer pixel having a color value and an alpha value; and a.3) comprises compositing the color value of the layer pixel with the accumulator color value, using the alpha value. (See Fig 2, Fig 14, Fig 21, Fig 23)

Regarding claim 15, claim 15 is similar in scope to the claim 1, and thus the rejection to claim 1 hereinabove is also applicable to claim 15.

Regarding claim 16, claim 16 is similar in scope to the claim 2, and thus the rejection to claim 2 hereinabove is also applicable to claim 16.

Regarding claim 17, claim 17 is similar in scope to the claim 3, and thus the rejection to claim 3 hereinabove is also applicable to claim 17.

Regarding claim 18, claim 18 is similar in scope to the claim 4, and thus the rejection to claim 4 hereinabove is also applicable to claim 18.

Regarding claim 19, claim 19 is similar in scope to the claim 5, and thus the rejection to claim 5 hereinabove is also applicable to claim 19.

Regarding claim 20, claim 20 is similar in scope to the claim 6, and thus the rejection to claim 6 hereinabove is also applicable to claim 20.

Regarding claim 21, claim 21 is similar in scope to the claim 7, and thus the rejection to claim 7 hereinabove is also applicable to claim 21.

Regarding claim 22, claim 22 is similar in scope to the claim 8, and thus the rejection to claim 8 hereinabove is also applicable to claim 22.

Regarding claim 23, claim 23 is similar in scope to the claim 9, and thus the rejection to claim 9 hereinabove is also applicable to claim 23.

Regarding claim 24, claim 24 is similar in scope to the claim 10, and thus the rejection to claim 1 hereinabove is also applicable to claim 24.

Regarding claim 25, claim 25 is similar in scope to the claim 11, and thus the rejection to claim 11 hereinabove is also applicable to claim 25.

Regarding claim 26, claim 26 is similar in scope to the claim 12, and thus the rejection to claim 12 hereinabove is also applicable to claim 26.

Regarding claim 27, claim 27 is similar in scope to the claim 13, and thus the rejection to claim 13 hereinabove is also applicable to claim 27.

Regarding claim 28, claim 28 is similar in scope to the claim 14, and thus the rejection to claim 14 hereinabove is also applicable to claim 28.

Regarding claim 29, claim 29 is similar in scope to the claim 1, and thus the rejection to claim 1 hereinabove is also applicable to claim 29.

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Regarding claim 30, claim 30 is similar in scope to the claim 2, and thus the rejection to claim 2 hereinabove is also applicable to claim 30.

Regarding claim 31, claim 31 is similar in scope to the claim 3, and thus the rejection to claim 3 hereinabove is also applicable to claim 31.

Regarding claim 32, claim 32 is similar in scope to the claim 4, and thus the rejection to claim 4 hereinabove is also applicable to claim 32.

Regarding claim 33, claim 33 is similar in scope to the claim 5, and thus the rejection to claim 5 hereinabove is also applicable to claim 33.

Regarding claim 34, claim 34 is similar in scope to the claim 6, and thus the rejection to claim 6 hereinabove is also applicable to claim 34.

Regarding claim 35, claim 35 is similar in scope to the claim 7, and thus the rejection to claim 7 hereinabove is also applicable to claim 35.

Regarding claim 36, claim 36 is similar in scope to the claim 8, and thus the rejection to claim 8 hereinabove is also applicable to claim 36.

Regarding claim 37, claim 37 is similar in scope to the claim 9, and thus the rejection to claim 9 hereinabove is also applicable to claim 37.

Regarding claim 38, claim 38 is similar in scope to the claim 10, and thus the rejection to claim 1 hereinabove is also applicable to claim 38.

Regarding claim 39, claim 39 is similar in scope to the claim 11, and thus the rejection to claim 11 hereinabove is also applicable to claim 39.

Regarding claim 40, claim 40 is similar in scope to the claim 12, and thus the rejection to claim 12 hereinabove is also applicable to claim 40.

Regarding claim 41, claim 41 is similar in scope to the claim 13, and thus the rejection to claim 13 hereinabove is also applicable to claim 41.

Regarding claim 42, claim 42 is similar in scope to the claim 14, and thus the rejection to claim 14 hereinabove is also applicable to claim 42.

Regarding claim 43, claim 43 is similar in scope to the claim 1, and thus the rejection to claim 1 hereinabove is also applicable to claim 43.

Regarding claim 44, claim 44 is similar in scope to the claim 2, and thus the rejection to claim 2 hereinabove is also applicable to claim 44.

Regarding claim 45, claim 45 is similar in scope to the claim 3, and thus the rejection to claim 3 hereinabove is also applicable to claim 45.

Regarding claim 46, claim 46 is similar in scope to the claim 4, and thus the rejection to claim 4 hereinabove is also applicable to claim 46.

Regarding claim 47, claim 47 is similar in scope to the claim 5, and thus the rejection to claim 5 hereinabove is also applicable to claim 47.

Regarding claim 48, claim 48 is similar in scope to the claim 6, and thus the rejection to claim 6 hereinabove is also applicable to claim 48.

Regarding claim 49, claim 49 is similar in scope to the claim 7, and thus the rejection to claim 7 hereinabove is also applicable to claim 49.

Regarding claim 50, claim 50 is similar in scope to the claim 8, and thus the rejection to claim 8 hereinabove is also applicable to claim 50.

Regarding claim 51, claim 51 is similar in scope to the claim 9, and thus the rejection to claim 9 hereinabove is also applicable to claim 51.

Regarding claim 52, claim 52 is similar in scope to the claim 10, and thus the rejection to claim 1 hereinabove is also applicable to claim 52.

Regarding claim 53, claim 53 is similar in scope to the claim 11, and thus the rejection to claim 11 hereinabove is also applicable to claim 53.

Regarding claim 54, claim 54 is similar in scope to the claim 12, and thus the rejection to claim 12 hereinabove is also applicable to claim 54.

Regarding claim 55, claim 55 is similar in scope to the claim 13, and thus the rejection to claim 13 hereinabove is also applicable to claim 55.

Regarding claim 56, claim 56 is similar in scope to the claim 14, and thus the rejection to claim 14 hereinabove is also applicable to claim 56.

Regarding claim 57, refer to the discussion for the claim 1 hereinabove, O'Connor et al discloses that the claimed feature of an image containing a plurality of layers, wherein a first one of the layers overlaps a second one of the layers, and wherein each layer comprises bounds defined by edges, and wherein at least one edge

of the first layer lies within the bounds of the second layer, a method of subdividing tiles, (See Abstract, Fig 1, Fig 2, Fig 4, Fig 21-23) comprising: [subdividing the second layer along a straight line corresponding to an extension of the at least one edge of the first layer that lies within the bounds of the second layer, to obtain two tile subdivisions; and storing, in a tile list, a representation of at least a subset of the obtained file subdivisions; wherein, for each tile, the set of layers that overlap within the tile is homogenous throughout the entirety of the tile].

O'Connor et al does not specifically disclose that "subdividing the second layer along a straight line corresponding to an extension of the at least one edge of the first layer that lies within the bounds of the second layer, wherein the set of layers that overlap within the tile is homogenous throughout the entirety of the tile". However, such limitation is shown in the teaching of Bier. [i.e. composed scene '500' in Fig 5, '1704-1707' in Fig 17] (See Fig 5, Fig 17, col 7 line 54-62) It would have been obvious to one skilled in the art to incorporate the teaching of Bier into the teaching of O'Connor et al [i.e. the overlapped portions are separately calculated/executed with other regions of windows/layers], in order to produce faster final composed image with easy manner [i.e. "reduce the amount of computation and speed processing in the processing of transparency" See col 7 line 62-65 in Schiller et al], as using such "tile" structure is also advantageously desirable in the teaching of O'Connor et al for performing image composition with multiple layers with minimized hardware (i.e. less memory, as tiles can be treated as one group of embodiment in memory) at faster processing time (i.e.

eliminate repetitious calculations for invisible tiles or on overlapped regions by partitioning the object).

Regarding claim 58, refer to the discussion for the claim 57 hereinabove, Bier discloses that repeating the subdividing step using at least one of the obtained file subdivisions. (See Fig 5, Fig 17, col 7 line 54-62)

Regarding claim 59, refer to the discussion for the claim 57 hereinabove, Bier discloses that joining at least two adjacent tile subdivisions in the tile list. (See Fig 5, Fig 17, col 7 line 54-62)

Regarding claim 60, refer to the discussion for the claim 57 hereinabove, Bier discloses that responsive to at least two adjacent tile subdivisions including portions of the same set of identical layers as one another, joining the at least two adjacent tile subdivisions in the tile list. (See Fig 5, Fig 17, col 7 line 54-62)

Regarding claim 61, claim 61 is similar in scope to the claim 57, and thus the rejection to claim 57 hereinabove is also applicable to claim 61.

Regarding claim 62, claim 62 is similar in scope to the claim 58, and thus the rejection to claim 58 hereinabove is also applicable to claim 62.

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Regarding claim 63, claim 63 is similar in scope to the claim 59, and thus the rejection to claim 59 hereinabove is also applicable to claim 63.

Regarding claim 64, claim 64 is similar in scope to the claim 60, and thus the rejection to claim 60 hereinabove is also applicable to claim 64.

Regarding claim 65, claim 65 is similar in scope to the claim 57, and thus the rejection to claim 57 hereinabove is also applicable to claim 65.

Regarding claim 66, claim 66 is similar in scope to the claim 58, and thus the rejection to claim 58 hereinabove is also applicable to claim 66.

Regarding claim 67, claim 67 is similar in scope to the claim 59, and thus the rejection to claim 59 hereinabove is also applicable to claim 67.

Regarding claim 68, claim 68 is similar in scope to the claim 60, and thus the rejection to claim 60 hereinabove is also applicable to claim 68.

Regarding claim 69, claim 69 is similar in scope to the claim 57, and thus the rejection to claim 57 hereinabove is also applicable to claim 69.

Regarding claim 70, claim 70 is similar in scope to the claim 58, and thus the rejection to claim 58 hereinabove is also applicable to claim 70.

Regarding claim 71, claim 71 is similar in scope to the claim 59, and thus the rejection to claim 59 hereinabove is also applicable to claim 71.

Regarding claim 72, claim 72 is similar in scope to the claim 60, and thus the rejection to claim 60 hereinabove is also applicable to claim 72.

Response to Arguments/Amendment

Applicant's arguments with respect to claims 1-72 have been considered but are moot in view of the new ground(s) of rejection. Specifically, in response to the Applicant's argument that technique of subdividing the image as a tile, wherein the set of layers that overlap within the tile is homogenous throughout the entirety of the tile, newly submitted references (Bier) clearly discloses that dividing the image/object into the tiles according to an area of overlap, where such divided regions/tiles are homogenous throughout the entirety of the tile. [i.e. composed scene '500' in Fig 5, '1704-1707' in Fig 17] (See Fig 5, Fig 17, col 7 line 54-62) See the rejection hereinabove.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose telephone number is (703) 306-3419. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am- 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Razavi, can be reached at (703) 305-4713.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

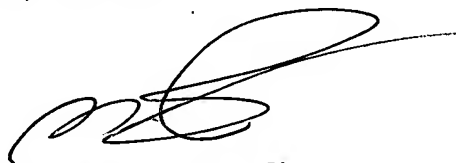
(703) 872-9306 (Central fax)

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

djc
January 6, 2005



TECHNOLOGY CENTER 2600
SUPERVISOR
PATENT EXAMINER
JAN 20 2005